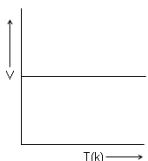
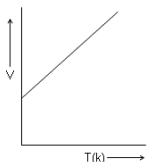
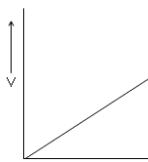
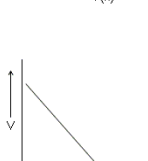


Class: XI  
Subject: Chemistry  
Topic: States of Matter  
No. of Questions: 28

1. Which of the following liquids will exhibit the highest vapour pressure?

- A.  $C_2H_5OH(l)$
- B.  $NH_3(l)$
- C.  $HF(l)$
- D.  $H_2O(l)$

2. The correct representation of Charle's law is given in

- A. 
- B. 
- C. 
- D. 

3. One mole of a gas refers to
- A. the number of molecules in one litre of gas
  - B. the number of molecules in one gram of gas
  - C. the number of molecules contained in 12 grams of  $^{12}\text{C}$  isotope
  - D. the number of molecules in 22.4 litres of a gas at S.T.P.
4. Which of the following represents the units of Vander Waal's constant 'a'?
- A.  $\text{L mol}^{-1}$
  - B.  $\text{atm L}^2 \text{mol}^{-2}$
  - C.  $\text{L atm mol}^{-1}$
  - D.  $\text{L atm mol}^{-2}$
5. With increase in pressure, the mean free path
- A. increases
  - B. becomes zero
  - C. decreases
  - D. remains constant
6. Which of the following is not heavier than dry air?
- A. Moist air
  - B.  $\text{SO}_2$
  - C.  $\text{Cl}_2$
  - D. None of these
7. In the gas equation  $PV = nRT$ , the value of R would depend only on
- A. the nature of the gas
  - B. the volume of the gas
  - C. constant
  - D. the units of measurement
8. Which of the following is a postulate of kinetic theory of gases?
- A. Gases combine in simple ratio
  - B. There is no attraction between gaseous molecules
  - C. There is no influence of gravity on gas
  - D. Atom is indivisible

9. Gases become ideal at

- A. high temperature and high pressure
- B. low pressure and high temperature
- C. low temperature and low pressure
- D. high pressure and low temperature

10. The KE of gas molecules is equal to

- A.  $\frac{3RT}{2}$
- B.  $\frac{2RT}{3}$
- C.  $\frac{RT}{2}$
- D.  $\frac{2R}{3}$

11. The temperature at which real gases obey the ideal gas laws over a wide range of pressure is called

- A. Critical temperature
- B. Boyle temperature
- C. Inversion temperature
- D. Reduced temperature

12. Which gas is most soluble in water?

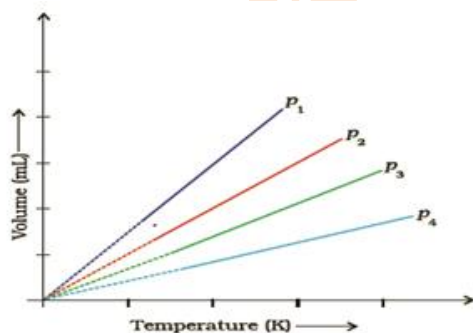
- A. H<sub>2</sub>S
- B. NH<sub>3</sub>
- C. SO<sub>2</sub>
- D. CO<sub>2</sub>

13. The van der Waals equation is true for

- A. Ideal gas
- B. Real gas
- C. Gaseous substance
- D. None

14. Which of the following represents the Avogadro number?
- A. The number of molecules present in 1 L of gas at NTP
  - B. The number of molecules present in 22.4 L of gas at NTP
  - C. The number of molecules present in 22.4 L of gas at 298 K and 1 atm. pressure
  - D. The number of molecules present in one mole of gas at any temperature and pressure
15. The mass of 11.2 L of ammonia gas at STP is
- A. 8.5 g
  - B. 85 g
  - C. 17 g
  - D. 1.7 g
16. Two moles of H-atoms at NTP occupy a volume of
- A. 11.2 L
  - B. 44.8 L
  - C. 2 L
  - D. 22.4 L
17. \_\_\_\_\_ is a collision in which there is no net loss of energy rather, there is transfer of energy.
- A. Effusion
  - B. Elastic collision
  - C. Magnetic collision
  - D. Electric collision
18. The temperature below which a gas becomes cooler on expansion, is called
- A. critical temperature
  - B. transition temperature
  - C. inversion temperature
  - D. Boyle's temperature
19. The rates of diffusion of gases are inversely proportional to the square root of their
- A. volumes
  - B. temperatures
  - C. pressures
  - D. molecular masses

20. Separation of a mixture of gases on the basis of the difference in their rates of diffusion is called
- A. hydrolysis
  - B. atmolysis
  - C. electrolysis
  - D. osmosis
21. A vessel of 120 mL capacity contains a certain amount of gas at 35° C and 1.2 bar pressure. The gas is transferred to another vessel of volume 180 mL at 35 °C What would be its pressure?
22. What will be the pressure exerted by a mixture of 3.2 g of methane and 4.4 g of carbon dioxide contained in a 9 dm<sup>3</sup> flask at 27 °C ?
23. Calculate the temperature of 4.0 mol of a gas occupying 5 dm<sup>3</sup> at 3.32 bar. ( $R=0.083 \text{ bar dm}^3 \text{ K}^{-1} \text{ mol}^{-1}$ ).
24. A mixture of dihydrogen and dioxygen at one bar pressure contains 20% by weight of dihydrogen. Calculate the partial pressure of dihydrogen.
25. A plot of volume (V) versus temperature (T) for a gas at constant pressure is a straight line passing through the origin. The plots at different values of pressure are shown in Fig. 5.1 Which of the following order of pressure is correct for this gas?



- A.  $P_1 > P_2 > P_3 > P_4$
- B.  $P_1 = P_2 = P_3 = P_4$
- C.  $P_1 < P_2 < P_3 < P_4$
- D.  $P_1 < P_2 = P_3 < P_4$

26. What would be the SI unit for the quantity  $pV^2T^2/n$ ?

27. Gases possess characteristic critical temperature which depends upon the magnitude of intermolecular forces between the particles. Following are the critical temperatures of some gases.

Gases	H <sub>2</sub>	He	O <sub>2</sub>	N <sub>2</sub>
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Critical temperature

In Kelvin	33.2	5.3	154.3	126
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From the above data what would be the order of liquefaction of these gases? Start writing the order from the gas liquefying first

- A. H<sub>2</sub>, He, O<sub>2</sub>, N<sub>2</sub>
- B. He, O<sub>2</sub>, H<sub>2</sub>, N<sub>2</sub>
- C. N<sub>2</sub>, O<sub>2</sub>, He, H<sub>2</sub>
- D. O<sub>2</sub>, N<sub>2</sub>, H<sub>2</sub>, He

28. Explain the physical significance of Van der Waals parameters.